

**Amendments to the Claims**

The listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claims 1-4. (canceled)

Claim 5. (original) Apparatus for computerized breath analysis comprising:

a breath receiver in fluid communication with a subject;

a breathing analyzer coupled to the breath receiver and operative to analyze breathing of said subject and provide at least one output; and

a respiration diagnosis generator providing an indication of the respiratory status of the subject based on at least one output of said breathing analyzer.

Claims 6-9. (canceled)

Claim 10. (original) Apparatus according to claim 5 and wherein said breathing analyzer includes a capnograph.

Claims 11-17. (canceled)

Claim 18. (currently amended) Apparatus according to claim ~~13~~ 5 and wherein said breathing analyzer compares at least part of said breath waveform with at least one reference.

Claim 19. (currently amended) Apparatus according to claim ~~13~~ 5 and wherein said breathing analyzer analyzes variations in at least part of said breath waveform over time for detecting changes in the respiratory status of said subject.

Claim 20. (canceled)

Claim 21. (original) Apparatus for providing an indication of the respiratory state of a subject, comprising:

a gas analyzer which provides at least one time-dependent waveform of the partial pressure of carbon dioxide in the breath of a subject;

an input circuit for receiving a sequence of digitized signals derived from said at least one waveform;

a signal processor for analyzing said at least one waveform for at least one parameter which characterizes a property of said waveform;

a parameter comparator for comparing said at least one parameter with a predefined parameter which characterizes the same property of a waveform obtained from a normal subject; and

a diagnosis generator which generates a message in accordance with the output of said parameter comparator.

Claim 22. (original) Apparatus according to claim 21 and wherein said gas analyzer is a capnograph.

Claim 23. (original) Apparatus for providing an indication of the respiratory state of a subject, comprising:

a gas analyzer which provides a plurality of time-sequenced waveforms of the partial pressure of carbon dioxide in the breath of a subject;

an input circuit for receiving a sequence of digitized signals derived from said plurality of time-sequenced waveforms;

a signal processor for analyzing said plurality of time-sequenced waveforms for determining changes with time in at least one parameter of said plurality of time-sequenced waveforms;

a trend analyzing unit for comparing said changes with time in said at least one parameter of said plurality of time-sequenced waveforms, with predefined changes with time in the equivalent said at least one parameter of time-sequenced waveforms typical of patients with known respiratory deficiencies; and

a diagnosis generator which generates a message in accordance with the output of said trend analyzing unit.

Claim 24. (original) Apparatus according to claim 23 and wherein said gas analyzer is a capnograph.

Claim 25. (canceled)

Claim 26. (previously presented) Apparatus for computerized breath analysis comprising:

a breath receiver in fluid communication with a subject; and

a breath analyzer coupled to said breath receiver which analyzes at least one breath of the subject, wherein said apparatus provides an indication of the discrepancy between the end tidal carbon dioxide partial pressure in breath of the subject and the arterial carbon dioxide partial pressure of the subject.

Claim 27. (previously presented) Apparatus for computerized breath analysis

according to claim 26 and wherein said discrepancy is utilized to provide an indication of the arterial carbon dioxide partial pressure of the subject.

Claim 28. (previously presented) Apparatus for computerized breath analysis according to claim 26 and wherein said breath analyzer comprises a carbon dioxide analyzer and an oxygen analyzer.

Claim 29. (previously presented) Apparatus for computerized breath analysis according to claim 28, said apparatus also comprising a computational unit, and wherein:

said oxygen analyzer provides values of the partial pressures of inspired and expired oxygen in said at least one breath of the subject; and

said computational unit utilizes the difference between said values to provide said indication of the discrepancy between said end tidal carbon dioxide partial pressure in breath of the subject and said arterial carbon dioxide partial pressure of the subject.

Claim 30. (previously presented) Apparatus for computerized breath analysis according to claim 29 and wherein said discrepancy is utilized to provide an indication of the arterial carbon dioxide partial pressure of the subject.

Claim 31. (previously presented) Apparatus for computerized breath analysis according to claim 26 and also comprising a respiration diagnosis generator providing an indication of the respiratory status of the subject based on said indication of said discrepancy between said end tidal carbon dioxide partial pressure in breath of the subject and said arterial carbon dioxide partial pressure of the subject.

Claim 32. (previously presented) Apparatus for computerized breath analysis according to claim 30 and also comprising a respiration diagnosis generator providing an indication of the respiratory status of the subject based on said indication of the arterial carbon

dioxide partial pressure of the subject.

Claim 33. (previously presented) Apparatus according to claim 26 and wherein said breath analyzer performs analysis of at least one breath waveform.

Claim 34. (previously presented) Apparatus according to claim 30 and wherein said breath analyzer performs analysis of at least one breath waveform.

Claim 35. (previously presented) Apparatus for computerized breath analysis according to claim 26 and also comprising a pulmonary volume meter, and wherein respiratory volume measured by said meter is utilized to provide said indication of the discrepancy between the end tidal carbon dioxide partial pressure in breath of the subject and the arterial carbon dioxide partial pressure of the subject.

Claim 36. (previously presented) Apparatus for computerized breath analysis according to claim 26 and also comprising a pulmonary volume meter, said pulmonary volume meter providing flow rate information, and wherein said flow rate information is utilized to provide said indication of the discrepancy between the end tidal carbon dioxide partial pressure in breath of the subject and the arterial carbon dioxide partial pressure of the subject.

Claim 37. (previously presented) Apparatus for computerized breath analysis according to claim 27 and also comprising a pulmonary volume meter, and wherein respiratory volume measured by said meter is utilized to provide said indication of the arterial carbon dioxide partial pressure of the subject.

Claim 38. (previously presented) Apparatus for computerized breath analysis according to claim 27 and also comprising a pulmonary volume meter, said pulmonary volume meter providing flow rate information, and wherein said flow rate information is utilized to provide said indication of the arterial carbon dioxide partial pressure of the subject.

Claim 39. (previously presented) Apparatus for computerized breath analysis according to claim 26 and also comprising at least one input receiving at least one non-respiratory measurement made on the subject, and wherein said at least one non-respiratory measurement made on the subject is utilized to provide said indication of the discrepancy between the end tidal carbon dioxide partial pressure in breath of the subject and the arterial carbon dioxide partial pressure of the subject.

Claim 40. (previously presented) Apparatus for computerized breath analysis according to claim 27 and also comprising at least one input receiving at least one non-respiratory measurement made on the subject, and wherein said at least one non-respiratory measurement made on the subject is utilized to provide said indication of the arterial carbon dioxide partial pressure of the subject.

Claim 41. (previously presented) Apparatus for computerized breath analysis according to either of claims 39 and 40 and wherein said at least one non-respiratory measurement made on the subject provides information about the condition of the blood circulation such that said information is used to correlate transfer of arterial carbon dioxide from the blood to the exhaled breath of the subject.

Claim 42. (previously presented) Apparatus for computerized breath analysis according to either of claims 39 and 40 and wherein said at least one non-respiratory measurement made on the subject provides information about the content of the blood such that said information is used to correlate transfer of arterial carbon dioxide from the blood to the exhaled breath of the subject.

Claim 43. (previously presented) Apparatus for computerized breath analysis according to either of claims 39 and 40 and wherein said at least one non-respiratory

measurement made on the subject comprises at least one of:

- an ECG measurement;
- a pulse rate measurement;
- a pulse oximetric measurement of arterial oxygen saturation level;
- a cardiac output measurement; and
- a body temperature measurement.

Claim 44. (previously presented) Apparatus for computerized breath analysis comprising:

- a breath receiver in fluid communication with a subject;
  - a gas analyzer coupled to said breath receiver for measuring the carbon dioxide partial pressure of said breath;
  - a capnographic interpreter unit coupled to said gas analyzer which analyzes carbon dioxide waveform shape of at least one breath of the subject for its carbon dioxide content and provides at least one waveform output parameter characteristic of said waveform shape;
  - a respiration diagnosis generator; and
  - at least one input receiving at least one non-respiratory measurement made on the subject;
- wherein said respiration diagnosis generator provides a diagnostic determination of the respiratory state of the subject based on said at least one waveform output parameter and on said at least one non-respiratory measurement.

Claim 45. (previously presented) Apparatus for computerized breath analysis according to claim 44 and wherein said at least one non-respiratory measurement made on the

subject comprises at least one of:

- an ECG measurement;
- a pulse rate measurement;
- a pulse oximetric measurement of arterial oxygen saturation level;
- a cardiac output measurement; and
- a body temperature measurement.

Claim 46. (previously presented) Apparatus for computerized breath analysis according to claim 26 and wherein said apparatus utilizes output of said breath analyzer to provide said indication of said discrepancy.